Gavin Power, LLC
7397 State Route 7 North
PO Box 271
Cheshire, OH 45620-0271

October 19, 2020

Sent via email

Mr. Andrew Wheeler
Administrator
Environmental Protection Agency
Office of the Administrator, Mail Code 1101A
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Mr. Wheeler,

Gavin Power, LLC (Gavin) respectfully requests a site-specific alternative to initiation of closure deadline under the revised rulemaking for 40 Code of Federal Regulations (CFR), Part 257, Subpart D, Section 257.103(f)(1) published August 28, 2020 (Final Rule). Gavin owns and operates the General James M. Gavin Plant in Cheshire, Ohio, which is a coal-fired electric generation facility that manages coal combustion residuals (CCR) in a bottom ash pond. The request for an alternative initiation of closure deadline is based on the technical infeasibility of developing alternate CCR, and non-CCR, disposal capacity by the cease-receipt of waste deadline of April 11, 2021.

Enclosed please find the demonstration and compliance certifications required by §257.103(f)(i) through (iv).

We look forward to your review and response. Please contact me at beth.quirk.hendry@kindle-energy.com or (609) 250-7226 should you have any questions.

Sincerely,

Elizabeth Quirk-Hendry
Gavin Power, LLC

cc: Kirsten Hillyer
Frank Behan
Richard Huggins

SITE-SPECIFIC ALTERNATIVE DEADLINE DEMONSTRATION TO INITIATE CLOSURE OF CCR SURFACE IMPOUNDMENT

Gavin Plant Bottom Ash Pond

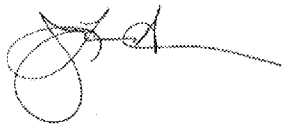
19 October 2020

Signature Page

19 October 2020

SITE-SPECIFIC ALTERNATIVE DEADLINE DEMONSTRATION TO INITIATE CLOSURE OF CCR SURFACE IMPOUNDMENT

Gavin Plant Bottom Ash Pond



J. Lawrence Hosmer, P.E.
Senior Partner, Engineer

Stephen Lindsay, P.E.
Principal Consultant, Engineer

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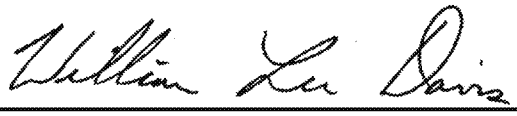
Acronyms and Abbreviations

Name	Description
AEP	American Electric Power
AHE	Ash Handling Equipment
ASD	Alternative Source Demonstrations
BAC	Bottom Ash Complex
BAP	Bottom Ash Pond
BAT	Best Available Technology
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
CPT	Cone Penetrometer Soundings
DCC	Underboiler Drag Chain Conveyor
ELG	Effluent Limit Guidelines
FAR	Fly Ash Reservoir
FGD	Flue Gas Desulfurization
Final Rule	40 CFR, Part 257, Subpart D, Section 257.103 effective 28 September 2020
Gavin	Gavin Power, LLC
Gavin Plant	General James M. Gavin Power Plant
MGD	Million Gallons per Day
NPDES	National Pollutant Discharge Elimination System
ODNR	Ohio Department of Natural Resources
OEPA	Ohio Environmental Protection Agency
OVEC	Ohio Valley Electric Corporation
PTI	Permit to Install
PWP	Process Water Pond
RWL	Residual Waste Landfill
SSI	Statistically Significant Increase
TSS	Total Suspended Solids
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USWAG	Utility Solid Waste Activities Group
WWTP	Wastewater treatment plant

Certification of Compliance 40 CFR, Part 257, Subpart D

Gavin Power, LLC hereby certifies that they are in compliance with all final requirements of 40 CFR §257, Subpart D as of October 2020.

Signature  October 19, 2020

William Lee Davis
Chief Executive Officer
Gavin Power, LLC

Certification that CCR and non-CCR waste streams must continue to be managed in the BAP

In accordance with the final rulemaking for 40 CFR §257.103(f)(1) effective 28 September 2020, Gavin Power, LLC certifies that CCR and non-CCR waste streams must continue to be managed in the Bottom Ash Pond surface impoundment because it is technically infeasible to complete the measures necessary to provide alternative disposal capacity on or off site of the facility by 11 April 2021.

Signature  October 19, 2020

William Lee Davis
Chief Executive Officer
Gavin Power, LLC

1. EXECUTIVE SUMMARY

Gavin Power, LLC (Gavin) owns and operates the General James M. Gavin Power Plant (Gavin Plant) located in the Town of Cheshire, Gallia County, Ohio. Coal Combustion Residuals (CCR), specifically bottom ash, and non-CCR process water streams produced by plant operations are managed in the facility Bottom Ash Pond (BAP). In response to the final rulemaking for 40 Code of Federal Regulations (CFR), Part 257, Subpart D, Section 257.103 effective 28 September 2020 (Final Rule), Gavin has prepared this *Site-Specific Alternative Deadline Demonstration to Initiate Closure of CCR Surface Impoundments* (Demonstration) to request approval to continue to receive CCR and non-CCR waste streams at the BAP until 10 March 2023. This request is based on the infeasibility of developing alternative capacity by the final cease-receipt of waste deadline of 11 April 2021.

In accordance with 40 CFR §257.71, Gavin has documented that the BAP is unlined. Under the Final Rule (40 CFR §257.101(a)(1)), the unlined BAP would be required to cease receipt of waste by 11 April 2021. Meeting that deadline is not feasible for the Gavin Plant; 10 March 2023 represents the fastest feasible timeline for developing alternative capacity for CCR and non-CCR waste streams managed in the BAP through the selected alternative capacity option. Consistent with the requirements included in the Final Rule, this Demonstration documents that no alternative disposal capacity is available on or off site. This Demonstration evaluates alternative capacity options as identified by the United States Environmental Protection Agency (USEPA) based on USEPA's definition of "technically feasible" presented in 40 CFR §257.53, and explains the decision-making process for the alternative capacity option selected. This Demonstration also documents that CCR and non-CCR waste streams must continue to be managed in the BAP until it is feasible to complete the required actions necessary to provide alternative disposal capacity or management for the CCR waste streams while maintaining compliance with all requirements of the subpart.

To achieve alternative disposal capacity for CCR waste streams, Gavin plans to convert the existing wet sluicing bottom ash handling equipment to a dry handling system by using underboiler Drag Chain Conveyor (DCC) technology. Upon completion of this project, bottom ash managed by the DCC will be sent to the Gavin Plant's Residual Waste Landfill (RWL) for disposal and the BAP will cease receipt of CCR waste streams.

A portion of the BAP will be subsequently closed by consolidating and capping the CCR waste in-place with a final cover system in accordance with 40 CFR §257.102. Gavin will repurpose the remainder of the BAP as a process-water-only settling pond. This approach will obviate the need to construct new process water treatment and efficiently use infrastructure already in place, while also initiating closure more rapidly than other alternative capacity options.

This Demonstration provides a description of the selected dry handling system and the BAP closure plan; a description of the progress to-date in achieving alternative capacity; and a timeline of the steps remaining to achieve alternative capacity, including design, procurement, fabrication, and construction. The Demonstration provides clear evidence that it is technically infeasible to develop alternative capacity for CCR and non-CCR waste streams, currently managed in the BAP, by 11 April 2021 and demonstrates that the site-specific alternative to initiation of closure date of 10 March 2023 is the fastest feasible timeline to achieve alternative capacity.

2. INTRODUCTION AND PURPOSE OF DEMONSTRATION

2.1 Background and Objectives

In accordance with the Final Rule, this Demonstration will show that the BAP CCR and non-CCR waste streams must continue to be managed in the BAP until it is feasible to complete development of alternative disposal capacity. This Demonstration provides an overview of the current plant operations and history; a summary of the local site setting; a review of the available alternative capacity options and their applicability to the Gavin Plant; identification of the alternative capacity option(s) selected for the Gavin Plant; and the timeline and steps required to achieve alternative capacity.

2.2 Plant Overview

Gavin owns and operates the Gavin Plant in the Town of Cheshire, Gallia County, Ohio, along the Ohio River. Figure 2-1 depicts the general location of the Gavin Plant, which is a 2,600-megawatt (net) coal fired electricity generating station that has been in operation since 1974. Dry fly ash and flue gas desulfurization materials generated at the Gavin Plant are conveyed approximately 1 mile from the plant to a stacker pad, and then transported by truck to the RWL for final disposal. Bottom ash is sluiced from beneath the two, 1,300-megawatt boilers to the BAP. The bottom ash is periodically excavated from the BAP, placed in trucks, and used as a base course on the haul roads within the RWL. The BAP also receives various process waters and wastewaters from the plant operations. Figure 2-2 provides an aerial image of the Gavin Plant layout depicting the relationship of the main plant area, the RWL, and the BAP. The BAP is the focus of this Demonstration.

2.3 Current Federal Regulatory Status

2.3.1 CCR Rule Compliance

2.3.1.1 2015 CCR Rule

On 21 June 2010, the CCR Rule was first proposed by the USEPA and later established under Subtitle D of the Resource Conservation and Recovery Act. The USEPA Administrator signed the final rule on 19 December 2014 and it was published in the Federal Register on 17 April 2015 as the Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities (hereafter referred to as the "2015 CCR Rule") and codified at 40 CFR, Part 257, Subpart D. Under the 2015 CCR rule, an unlined CCR impoundment was only required to stop receiving CCR if Appendix IV constituents were present at statistically significant levels above the groundwater protection standard; closure would have been required within 6 months. On 30 July 2018, the USEPA published revisions to the 2015 CCR rule which extended compliance deadlines for unlined impoundments and gave such facilities until 31 October 2020 to initiate closure. These revisions were effective on 29 August 2018. The CCR rule, inclusive of the revisions effective 29 August 2018 are hereafter referred to as the "2015 CCR Rule."

In August 2018, however, the United States Court of Appeals for the D.C. Circuit struck down and remanded portions of the 2015 CCR Rule (at 40 CFR §257.101) that allowed unlined or clay-lined surface impoundments (i.e., facilities that lack composite liners) to continue to operate unless and until groundwater monitoring reveals a leak.

2.3.1.2 2020 Final Rule

On 28 September 2020, the USEPA made changes to the 2015 CCR Rule to reflect the D.C. Circuit's 2018 decision (the Final Rule). The requirements set forth in the Final Rule form the basis of this Demonstration. In summary, the Final Rule made the following changes:

- No longer allows unlined impoundments to continue receiving CCR. Under the Final Rule, all unlined CCR surface impoundments must cease receipt of waste and close, regardless of whether they leak.
- Changed the classification of compact-soil lined or "clay lined" surface impoundments from "lined" to "unlined."
- Revised the initiation of closure deadlines for unlined CCR surface impoundments, and for units that failed the aquifer location restriction.
  - 11 April 2021: New cease receipt of waste deadline (formerly 31 October 2020) for unlined surface impoundments, inclusive of clay-lined impoundments (40 CFR §257.101(a)(1)).
- Provides facilities the opportunity to demonstrate the need for an alternative closure deadline if needed to develop alternative capacity to manage their waste streams.
  - 15 October 2023: New site-specific alternative to initiation of closure due to lack of alternative capacity (40 CFR §257.103(f)(1)).
  - 17 October 2028: New site-specific alternative to initiation of closure due to permanent cessation of a coal fired boiler(s) (§257.103(f)(2)) for impoundments larger than 40 acres (17 October 2023 for impoundments less than 40 acres).

2.3.1.3 Alternative Capacity Options

In the preamble to the Final Rule, the USEPA has determined that there are six main approaches for alternative capacity:

1. Conversion to dry handling
2. Non-CCR wastewater basin
3. Wastewater treatment facility
4. New CCR surface impoundment
5. Retrofit of a CCR surface impoundment
6. Multiple technology system

An overview of these options is provided in Section 4.

2.3.1.4 CCR Rule Applicability to Gavin

In accordance with 40 CFR §257.71(a), Gavin documented in July 2016 that the BAP was not constructed with a liner meeting the requirements of the section, thus the BAP is considered "unlined." Per the 2015 CCR Rule, unlined CCR surface impoundments were permitted to continue receiving CCR waste unless there was evidence of releases to groundwater.

The Final Rule at 40 CFR §257.101(a)(1) states that "an owner or operator of an existing unlined CCR surface impoundment must cease placing CCR and non-CCR waste streams into such CCR surface impoundment and either retrofit or close the CCR unit in accordance with the requirements of 257.102". Thus, under these amendments, the BAP would be required to cease receipt of wastes by 11 April 2021.

The USEPA acknowledges that not all plants may be able to achieve the new deadline of 11 April 2021, specifically mentioning those impoundments that are unlined, not leaking, in compliance with all locational standards, and, until the 2018 D.C. Circuit decision, were not required to close. Therefore, the USEPA will allow a site-specific alternative to the cease receipt of waste deadline if the necessary demonstration was met. Gavin is pursuing this site-specific alternative on the basis that development of alternative capacity for CCR and/or non-CCR is technically infeasible and cannot be completed prior to 11 April 2021.

2.3.2 NPDES Compliance

The Gavin Plant currently operates under National Pollutant Discharge Elimination System (NPDES) permit No. 0IB00006*OD, which was submitted for renewal in 2018. The facility has nine outfalls that discharge into the Ohio River, Stingy Run, Turkey Run, and Kyger Creek. The facility has two monitoring stations.

The BAP is used for primary settling and storing CCR waste streams, and treats significant amounts of process wastewaters (non-CCR waste streams). The water from the BAP is decanted through a reinforced concrete drop inlet structure into the Reclaim Pond. Within the Reclaim Pond, stored water is either pumped back to the plant for reuse or discharged to the Ohio River via Outfall 006.

2.3.3 Effluent Limitation Guidelines Compliance

In 1974, the USEPA initially promulgated the Effluent Limitation Guidelines (ELG) for Steam Electric Power Generation Point Source Category, codified at 40 CFR Part 423. The ELG applies to power plants that generate electricity for distribution and sale that results primarily from a process utilizing fossil-type fuel or nuclear fuel in conjunction with a thermal cycle employing the steam water system as the thermodynamic medium. In 1982, the ELG were amended to limit concentration levels of selected metals in wastewater from steam-powered electric power plants. In 2015, the rule was revised to address the changes in technology and certain dissolved pollutants. The rule sets new or additional requirements for wastewater streams from processes and byproducts including flue gas desulfurization, fly ash, bottom ash, flue gas mercury control, and the gasification of fuels such as coal and petroleum coke.

The 2015 ELG Rule identified dry handling of bottom ash or closed-loop wet ash handling systems as the best available technology (BAT) and therefore mandated zero-discharge of bottom ash transport water. The 2015 ELG Rule required most steam electric facilities to comply with effluent limitations "as soon as possible" after 1 November 2018 and no later than 31 December 2023. For direct discharge facilities, the particular compliance date(s) for each facility are determined by the facility's NPDES permit renewal and the regulatory authority.

On 13 October 2020, the USEPA published to the Federal Register revisions to the 2015 ELG Rule applicable to flue gas desulfurization (FGD) wastewater and bottom ash transport water. Specific to bottom ash transport water, this rule revises the BAT basis for controlling pollutants discharged in bottom ash transport water from dry bottom ash handling or closed-loop wet ash handing systems to high recycle rate systems. The final rule allows for a ten percent by-pass of bottom ash transport water allowable on a case-by-case basis to be decided by the permitting authority. The rule specifies that the BAT limitations do not apply until a date determined by the permitting authority that is as soon as possible beginning 13 October 2021, but no later than 31 December 2025. Gavin anticipates an ELG Rule compliance requirement date of 31 December 2023 for the Gavin Plant.

2.4 Document Organization

The remaining sections of this Demonstration are organized according to the following framework:

- Section 3 provides a detailed facility description and history of construction.

- Section 4 summarizes the alternative capacity options identified by the USEPA.
- Section 5 evaluates the alternative capacity options as they relate to the Gavin Plant and the efforts Gavin has undertaken to date to determine the feasibility of alternative capacities for managing CCR waste streams. Assessment of feasibility is based on an assessment of what is *technically feasible* and *technically infeasible* as defined by the USEPA.
- Section 6 presents Gavin's alternative capacity approach and the work plan for achieving that capacity. The work plan includes a status update and the timeline for the remaining steps to achieve alternative capacity.
- Section 7 presents compliance with all requirements of the subpart in accordance with (f)(1)(iii).
- Section 8 includes a summary of the key items presented in the Demonstration and conclusions.

3. FACILITY DESCRIPTION

3.1 Gavin Plant Overview

The Gavin Plant is a multi-unit, pulverized coal fired, steam electric generating facility, owned and operated by Gavin in Cheshire, Ohio. Gavin Plant Units 1 and 2 were commissioned in 1974 and 1975, respectively. Each unit generates approximately 1,300 megawatts net and currently uses Northern Appalachia Coal and a small amount of Illinois Basin Coal.

Ash that accumulates in the bottom of a generating unit's boiler after combustion (referred to as bottom ash) is captured in bottom ash hoppers located directly beneath the boiler. Boiler hopper ash clinker grinders crush the bottom ash, which is then sluiced by jet pumps to the BAP using bottom ash transport water. The BAP settles CCR materials from the transport water. Process water is also sent to the BAP. Much of the process water consists of recirculated cooling water sourced directly from the Ohio River. Bottom ash and accumulated process water sediments from the BAP are routinely dredged from the BAP and taken to the RWL for internal roadway construction. The current estimated volume of accumulated bottom ash in the BAP is approximately 1.2 million cubic yards based on field studies conducted in spring and summer 2020. For the purposes of this Demonstration, "CCR waste streams" refers to the combination of both bottom ash transport water and bottom ash. "Non-CCR waste streams" refers to all process water currently managed in the pond.

During coal pulverization, small amounts of the coal cannot be crushed; these uncrushed pieces of coal are rejected from the coal mill; they are called mill rejects or pyrites. Pyrites are captured in the pyrites tank, then sluiced to the BAP in dedicated pyrite piping lines. The coal-fired boilers at the Gavin Plant also have economizer ash hoppers and gas reclaim hoppers, which are part of separate ash streams from the bottom ash and fly ash. Economizer and gas recirculation ash material is sluiced to the pyrites tank during start-up and comingled with the pyrites before being transferred to the BAP. After start-up, the fly ash is then redirected to the pneumatic fly ash system and sent to the RWL.

3.2 Residual Waste Landfill

The RWL is northwest of the plant, as depicted on Figure 2-2. The RWL is permitted by the Ohio Environmental Protection Agency (OEPA) for disposal of CCR material as a Class III Landfill. Approximately 98 percent of this material is FGD scrubber cake, fly ash, and lime (added for stabilization); the remaining 2 percent is other approved disposal materials (including lime ball mill rejects, coal pulverizer rejects, sediments and bottom ash excavated from the bottom ash pond).

In 1994, the RWL was permitted for a capacity of 49 million cubic yards. In 2014, the RWL was authorized to expand horizontally and vertically, under Permit-to-Install (PTI) No. 06-08447 issued by the OEPA. Under this PTI, the capacity of the RWL will increase by 45.5 million cubic yards to a total of 94.5 million cubic yards. The RWL currently contains approximately 55.0 million cubic yards of CCR. Construction under the PTI has been ongoing since 2016 and will proceed in phases until completion, which should occur over the next several years.

3.3 Bottom Ash Complex

3.3.1 Construction History and Materials of Construction

The Bottom Ash Complex (BAC) consists of two ponds: the larger BAP (57.8 acres); and a smaller Reclaim Pond (6.7 acres), which abuts the BAP to the northwest. The Reclaim Pond was not designed to accumulate CCR and does not treat, store, or dispose of CCR waste streams, and thus is not a CCR

surface impoundment under the 2015 CCR Rule and Final Rule. The location and general layout of the BAP and the Reclaim Pond are presented on Figure 3-1.

The BAP was constructed as part of the BAC beginning in 1971 and completed by 1974, when Unit 1 was first placed into operation. The BAP was formed by constructing a continuous perimeter dike of cohesive embankment soil fill material, which is protected from erosion on the inboard and outboard slopes by grass vegetation and in some locations by riprap.

3.3.2 Bottom Ash Pond Operations

CCR waste streams are pumped into the BAP, where ash settles and is removed routinely from the BAP and transported to the RWL. The BAP also receives non-CCR waste streams, including coal-pile runoff, cooling tower blowdown, pyrites sluice, and various plant sump wastewaters. In total, up to 28 to 33 million gallons of CCR and non-CCR waste streams may be discharged to the BAP daily, including rainfall. The locations of each of these contributing flows is indicated on Figure 3-2. Approximately 11 million gallons per day (MGD) of the flows originate from cooling tower blowdown water (5.5 MGD per unit). Cooling tower blowdown water is sourced from the Ohio River, recycled through the cooling towers, and discharged to the BAP for total suspended solids (TSS) settling. Sediments in this water from the Ohio River settle in the BAP.

The water from the BAP is decanted through a reinforced concrete drop inlet structure into the Reclaim Pond. Within the Reclaim Pond, stored water is pumped to the Gavin Plant for reuse or discharged to the Ohio River via Outfall 006, in conformance with the facility's NPDES permit. An approximate water balance diagram for the BAP is presented on Figure 3-3.

3.3.3 Bottom Ash Pond Monitoring Program and Performance To-Date

The Gavin Plant complies with all inspection, monitoring, and reporting requirements of 40 CFR Part 257, including locational restriction demonstrations, hazard potential classifications, structural stability assessments, safety factor assessments, groundwater monitoring, fugitive dust control reporting, annual inspections, and flood control system planning. In July 2016, the Gavin Plant reported that the BAP was not constructed with a liner meeting the requirements of 40 CFR §257.71 (a). In October 2018, Gavin confirmed that the BAP was in compliance with the locational restriction requirements of 40 CFR §257.60 through 40 CFR §257.64. Further, the BAP is in compliance with all groundwater monitoring requirements. No corrective actions related to groundwater monitoring have been identified as of October 2020.

3.4 Location Descriptions

3.4.1 Physiographic Setting

The Gavin Plant is in the Allegheny Plateau physiographic region, specifically the Marietta Plateau, as delineated by the Ohio Division of Geological Survey "Physiographic Regions of Ohio." The Marietta Plateau is characterized as a dissected, high relief plateau with mostly fine-grained rocks, red shales, and red soils (Ohio Department of Natural Resources, 1998).

3.4.2 Wetlands and Watersheds

The BAC and BAP are within the watershed group (HUC: 05030202) which extends into West Virginia and Ohio. The watershed group includes Kyger Creek, Leading Creek, and the Ohio River. The BAP is within the Kyger Creek watershed (HUC-12: 050302020901), while the Ohio River watershed (HUC-12: 050302020904) is immediately to the east. Kyger Creek is immediately west of the BAP, while the Ohio River is immediately east.

4. OVERVIEW OF THE ALTERNATIVE CAPACITY OPTIONS IDENTIFIED BY THE USEPA

4.1 Introduction

This section provides an overview of the alternative capacity approaches identified by the USEPA in the Final Rule, which include management systems that are not disposal based.

4.2 Conversion to Dry Handling

Conversion to dry handling of CCR materials eliminates the discharge of bottom ash transport water and eliminates the need for CCR surface impoundments for storage of CCR waste streams. Many different dry ash handling technologies exist, including under boiler conveyor technologies such as a mechanical drag system, dry mechanical conveyor, and vibratory belt system.

4.3 Non-CCR Wastewater Basin

In cases where CCR and non-CCR waste streams are comingled and managed together in surface impoundments, plants must develop alternative capacity for managing non-CCR waste streams separately while also developing alternative capacity for CCR waste streams. A new wastewater basin may be constructed to manage non-CCR waste streams. CCR design and groundwater monitoring criteria do not apply to non-CCR wastewater basins, although such designs must consider the infrastructure required to transport process water to the new basin, basin residence time, discharge water quality for the receiving surface water under NPDES compliance, and potential facility leakage requirements.

4.4 Wastewater Treatment Facility

A wastewater treatment facility may be used in lieu of a surface impoundment to treat CCR waste streams prior to discharge. These CCR waste stream treatment facilities must be designed to treat the CCR waste streams in compliance with ELG guidelines for removing heavy metals and reducing the amount of total dissolved solids and TSS. A variety of treatment technologies and approaches exist. Once a wastewater treatment facility is online, the existing CCR surface impoundment can cease receipt of CCR wastes because these wastes are routed to the wastewater treatment facility.

4.5 New CCR Surface Impoundment

A new composite-lined CCR surface impoundment may be constructed either on- or off-site. New CCR surface impoundment locations must meet the requirements of 40 CFR §257.60 through 40 CFR §257.64, which limits impoundment locations based on proximity to aquifers, wetlands, fault areas, seismic impact zones, and unstable areas. In addition to federal locational requirements, new impoundments must also meet state and local siting requirements. In Ohio, a new surface impoundment is likely to be permitted as a dam.

New impoundments also must meet federal design criteria and account for operating criteria in their design, including the following:

- 40 CFR §257.72: Liner Design Criteria
- 40 CFR §257.74 Structural Integrity Criteria
- 40 CFR §257.80 Air Criteria
- 40 CFR §257.81 Run-On and Run-Off Controls for CCR Landfills

- 40 CFR §257.82 Hydrologic and Hydraulic Capacity Requirements for CCR Surface Impoundments
- 40 CFR §257.91 Groundwater Monitoring Systems:
  - The facility must maintain a groundwater monitoring system consisting of monitoring wells, complete eight background sampling events, and conduct the first round of detection monitoring prior to placement of CCR in the new surface impoundment; and
  - As part of the detection monitoring program, the CCR impoundment must incorporate a groundwater monitoring program with sampling and analysis procedures consistent with 40 CFR §257.93.

4.6 Retrofit of a CCR Surface Impoundment

Existing CCR surface impoundments may be retrofitted in accordance with 40 CFR §257.102. Once retrofitted, the CCR unit will include a compliant composite liner system and be able to continue to manage CCR waste streams without releases.

The procedure to retrofit an existing CCR surface impoundment consists of removal of all CCR and CCR contaminated materials from the unit, installation of a composite liner compliant with 40 CFR §257.72, and compliance with all other monitoring and inspection requirements. A written retrofit plan must be prepared at least 60 days prior to initiating retrofit activities that complies with the applicable state or federal agency permit modifications. All retrofit activities must be completed within 5 years of initiating the retrofit.

4.7 Multiple Technology Program

In some cases, facilities may pursue multiple alternative capacity options to achieve CCR compliance. These apply where no single approach is appropriate to the facility.

5. FEASIBILITY OF ALTERNATIVE CAPACITY OPTIONS

5.1 Introduction

In accordance with §257.103(f)(1)(iv)(A)(1), this section discusses the options Gavin considered for alternative capacity for management of CCR and non-CCR waste streams both on and off site, and the technical feasibility of each to obtain alternative capacity by 11 April 2021. This section also evaluates whether each of the alternative capacity options could achieve compliance with both CCR and ELG requirements applicable to Gavin and eliminates options as infeasible if they will not achieve compliance with both rules.

5.2 Evaluation of Siting Criteria for New Alternative Capacity Infrastructure

The Final CCR Rule requests that plants seeking a site-specific alternative closure deadline demonstrate that no alternative capacity is currently available, on or off site, nor can alternative capacity be feasibly developed by 11 April 2021. To support this claim, this section evaluates the space available within and surrounding the Gavin plant.

Figure 5-1 depicts Gavin-owned property within a 5-mile radius of the Gavin Plant as well as the surrounding properties. As shown, the area immediately adjacent to the plant is already occupied by existing infrastructure. Gavin's existing CCR units extend to the northwest of the main facility location, including the plant's RWL, which is currently undergoing expansion and the Fly Ash Reservoir (FAR), which is undergoing closure. The RWL is not an appropriate location for alternative disposal capacity because it is designed for dry CCR disposal and is needed for continued plant operations. The FAR is not an appropriate location for alternative disposal capacity because the FAR is in the final stages of closure, to be completed no later than 2021.

New infrastructure must be sufficiently sized to treat existing flows in order to be considered viable alternative capacity. A maximum of approximately 28 to 33 MGD of CCR and non-CCR waste streams are currently sent to the BAP, which is approximately 58 acres. Of the total daily flow to the BAP, approximately 5 MGD of this volume is made up of CCR waste streams (See Figure 3-2, Water Balance Diagram). The remaining 23-28 MGD of non-CCR waste streams (including cooling tower blowdown, pyrites, turbine room, overflow, and pretreatment sumps, fly ash transfer building sumps, and coal pile runoff), if not managed in the BAP, would require new storage and treatment capacity, as well as new infrastructure to return recycle flows for process water, and one or more new discharge outfalls requiring permitting. It is estimated that a new impoundment or non-CCR impoundment may require approximately the same amount of space as the current BAP, if not more, to efficiently achieve the required residence time to meet current NPDES permit limits. A wastewater treatment plant (WWTP) would require at least 20 acres of contiguous, flat property within reasonable proximity to the plant.

As shown in Figure 5-1, property of this size is not readily available for construction in the areas immediately adjacent to the plant or beyond. Much of the remaining on-site property is constrained by natural or man-made features. Streams intersect the property in multiple locations and exist in close proximity outside the Gavin Plant. Additionally, surface and underground mining that occurred previously in the area surrounds the Gavin Plant, extending into areas outside of Gavin owned property. Past mining has left voids throughout the property, influencing groundwater flow and creating known structural stability challenges as identified during investigations performed to support the expansion of the RWL, which was permitted in 2012. In addition, as shown in Figure 5-2, the area surrounding the plant, both on-site and off-site, is characterized by steep (i.e., >25%) slopes located between narrow ridges and valleys. The flat areas (depicted in green) within the property are currently occupied by the plant's FAR, RWL, and other infrastructure to support operations. Level areas outside of the plant are primarily located within the floodplains of existing streams and thus are not appropriate locations for the development of new

infrastructure. As such, development of the balance of the property would be less technically feasible than other options evaluated in this demonstration due to the following challenges:

- Geotechnical exploration required to determine the extent and impact of historical mining areas (e.g., subsurface geological evaluations, hydrological continuity and integrity, etc.) and structural stability;
- Environmental studies that would be required to evaluate potential impacts to stream and wetlands and compliance with location restrictions (e.g., aquifer separation); and
- Significant subsurface disturbances from blasting and other earth moving operations that would be required in these locations.

The above challenges are anticipated to add, at a minimum, 1 to 2 years to an overall project schedule, before detailed design could begin. In addition, construction of a surface impoundment, non-CCR wastewater basin or wastewater treatment plant in the area evaluated would require constructing distribution piping to transport bottom ash transport water and/or process water to the new infrastructure, as well as the construction of distribution piping to cycle water to the pond and return it to the plant. Siting multiple distribution pipelines would require additional challenges similar to that of the infrastructure itself. In addition, for long-term plant operations, it is less technically feasible, compared to other options considered in this demonstration, to build new infrastructure at significant distances (i.e., several miles) from the plant.

New off-site infrastructure would encounter similar challenges and would also require land acquisition. A new CCR impoundment could require permitting and approvals issued through the Ohio Department of Natural Resources (ODNR) Water Resources Division for a dam construction permit, OEPA for a NPDES permit and other construction permits, and possibly consultation with other authorities, such as the United States Fish and Wildlife Service, United States Army Corps of Engineers (USACE), and local permitting with Gallia County. The development of new infrastructure would require additional detailed field investigations, and environmental studies with respective submittal, regulatory review, and iteration approval processes for each of the aforementioned regulatory entities.

Because of the unknowns and challenges described above, Gavin considered constructing new infrastructure immediately on-site or off-site to be more time consuming and less technically feasible, i.e., to have a lower likelihood of success, when compared to utilizing existing infrastructure. This documentation is presented in more detail in the following sections.

5.3 Conversion to Dry Handling

5.3.1 Technologies Evaluated

Bottom ash transport water is subject to ELG compliance regulations under 40 CFR Part 423, which severely limits discharge of pollutants from bottom ash transport water. Compliance deadlines for the ELG rule are determined by the permitting authority and are no later than 31 December 2025. Conversion to a dry handling process would eliminate the need to discharge bottom ash transport water to and from the BAP, thus supporting compliance with ELG and CCR regulations. Gavin began evaluating available dry bottom ash handling technologies for Gavin Plant Units 1 and 2 in March 2019, working with technology suppliers to evaluate their feasibility specific to the Gavin facility operations. The technologies evaluated are as follows:

- Dry Belt Conveyor Option
  - An underboiler dry bottom ash handling system with a steel belt/tray conveyor technology is designed to replace the existing wet bottom ash hopper, ash clinker grinders, and boiler hopper ash jet pumps. The economizer ash and gas recirculation ash would be handled with a

combination of steel belt and scraper conveyors before it is combined with the dry bottom ash and transferred to the secondary post-cooler conveyor. The post-cooler conveyor would transfer the dry ash to a new storage silo or bunker, which would condition ash into haul trucks for transport to the RWL. Pyrites would continue to be sluiced to the repurposed low volume waste pond. This system does not use water to move the bottom ash away from the boiler.

- Compact Submerged Conveyors
  - This system consists of underboiler compact submerged conveyor technology designed to replace the existing bottom ash sluice piping located directly beneath the boiler for bottom ash transportation. With this system, the existing bottom ash hopper remains in place; the boiler hopper ash jet pumps, clinker grinders and piping are removed and replaced with the new compact submerged conveyor system. The bottom ash is reduced in size through new grinders and then transferred with the compact submerged conveyors to a new bottom ash bunker. Economizer ash and gas recirculation system ash is handled with dry flight conveyors. The economizer and gas recirculation system ash is deposited into the wet section of the main conveyors and the material is handled with the bottom ash. Pyrites transfer lines would be rerouted to the bottom ash hopper and transferred with the bottom ash. The ash in the bunker is transferred by a front-end loader to haul trucks for transport to the RWL. This is considered a dry handling system because the ash is transported away from the boiler mechanically and does not generate ash transport water that needs to be discharged.
- Underboiler Drag Chain Conveyor
  - An underboiler DCC technology is designed to replace the existing equipment located directly beneath the boiler. The existing bottom ash hopper, ash crushers, and boiler hopper ash jet pumps are removed and replaced with a new wet hopper and DCC. The bottom ash falls into the DCC trough and is dewatered as the ash is mechanically moved along the bottom of the trough and up an inclined dewatering ramp to the discharge chute into the bottom ash storage bunker outside the building. Economizer ash and gas recirculation system ash is handled by dry flight conveyors and deposited into the DCC to be handled with the bottom ash. Pyrites are also sluiced into the DCC and handled with the bottom ash and economizer ash. The ash in the bottom ash bunker is transferred by a front-end loader to haul trucks for transport to the RWL. This DCC technology is considered a dry handling system because the ash is transported away from the boiler mechanically and does not generate ash transport water that needs to be discharged.

5.3.2 Projected Timeline

Gavin's preliminary planning for conversion to a dry CCR handling system estimated that it would require approximately 38 months from the initiation of specification development to completion of construction. The technology evaluation and selection process required approximately 12 months, beginning in March of 2019, for a total of 51 months to complete the project. Given this timeframe, the conversion to dry handling, regardless of which of the three technologies is selected, could not be completed prior to the cease-receipt-of-waste deadline of 11 April 2021. Gavin has therefore elected to proceed with an alternative capacity option. A more detailed assessment of the implementation schedule is presented in Section 6.

5.3.3 Feasibility Assessment

Gavin's evaluation of the three dry handling technologies indicates that conversion to dry handling is a technically feasible option for CCR compliance. In addition, none of the ash handling options evaluated

would produce ash transport water. Therefore, the conversion to dry handling would support ELG compliance. Although feasible, there are several considerations associated with this option, as follows:

- Alternative ash storage solutions
  - While bottom ash and bottom ash transport water are diverted from the BAP, ash disposal is still necessary for continued operations. Temporary storage areas for dry ash must be sited, designed, and constructed before any storage would be possible. Dry ash must be transported to its final disposal location, which in this case is the RWL. The logistics of ash hauling from the temporary storage areas to the RWL would require dust control and logistical management.
- Required outages
  - Removing and modifying the existing bottom ash hoppers requires at least one major outage per unit which must be coordinated with the regional transmission organization.
- Management of process water
  - Conversion to a dry handling system does not eliminate the need to manage pyrites and process water, including cooling tower blowdown water, overflow sumps, storm water, and coal pile runoff. Alternative capacity for process water management must still be developed and permitted.
- Multiple plant modifications
  - Conversion to a dry handling system would require possible plant modifications including, but not limited to, replacing the hopper, reconfiguring the conveyor, reconfiguring process piping, and relocating multiple pieces of equipment, including steam lines, nitrogen purge systems, compressed air storage tanks, and pulverizer access doors.
- Reliability of conversion technology
  - Several of the conversion technologies evaluated currently have limited installations in the United States to demonstrate performance on a boiler as large as the Gavin boilers, although additional installations are proven globally. Proven reliability of the conversion technology is critical.

5.4 Non-CCR Wastewater Basin

5.4.1 Evaluation

Alternative capacity for CCR waste streams must also consider the management, treatment, and disposal of existing non-CCR wastewater streams. In the fall of 2018, the Gavin Plant began evaluating conceptual engineering options for BAP compliance with future undefined CCR regulations.[1] Relevant schedule, regulatory compliance, and constructability risks were evaluated to guide the decision-making process for future management of the BAP. One of the engineering options evaluated was to convert the BAP to a process water pond (PWP) as a non-CCR wastewater basin in lieu of constructing a new process water management facility. As discussed in Section 5.2, viable space for a new facility is not readily available, nor determined to be technically feasible.

Gavin developed multiple conceptual configurations for the conversion of the BAP to a PWP. In one configuration, the entire BAP would be converted to a PWP. In other configurations, only a portion of the BAP would be converted to a PWP while the remaining portion would be retrofitted or closed in

[1] 21 August 2018 D.C. Circuit Court of Appeals opinion in the case *USWAG, et al. v. USEPA* that indicated that the pond may have to close.

compliance with federal regulations for continued use as a CCR regulated unit; or, closed in-place and alternative capacity provided. Options considered for retrofitting the BAP for continued use as a CCR surface impoundment are discussed in Section 5.6.

Gavin developed conceptual approaches for converting the BAP to a PWP, including required civil procedures, water management, bottom ash removal, and redirection of process flows. The most feasible general construction sequence includes the following tasks: dewatering the BAP, consolidating CCR and sediment in a portion of the pond and capping it in place in accordance with 40 CFR §257.102, building a berm, and converting the remaining infrastructure to a PWP for continued treatment of non-CCR waste streams.

5.4.2 Projected Timeline

The scenarios developed by Gavin for converting all or a portion of the BAP to a PWP, estimated that this approach would require approximately 72 months, from pre-design conceptual engineering evaluations to completion of construction. Pre-design conceptual engineering evaluations required an approximate 12 months. This timeframe includes pre-design subsurface investigation work required to gather information for the basis of design. Given this timeframe, conversion of the BAP would not be complete prior to the cease-receipt-of-waste deadline of 11 April 2021.

5.4.3 Feasibility Assessment

The Gavin conceptual evaluations for the BAP conversion indicate that the project is technically feasible, although careful construction sequencing would be required to effectively manage water, ash, and process water flows during construction, and to discharge the flows in compliance with the Gavin Plant NPDES permit and applicable ELGs. Considerations include:

- Disposal of existing bottom ash
  - Existing bottom ash pond sediments would be excavated for conversion to a PWP. Excavated bottom ash would be consolidated in a portion of the BAP. Therefore, this alternative should account for the stability of the varying textures and characteristics of CCR and sediments being stored.
- Management of future bottom ash
  - Conversion of the BAP to a PWP is dependent upon the ability to manage CCR waste streams through alternative means (e.g., through conversion to a dry handling method (Section 5.3), or management in a new surface impoundment (Section 5.6)). As described in Section 5.3, the conversion to a dry handling system would require approximately 51 months. Therefore, the conversion of the BAP to a PWP cannot be completed until the dry handling conversion is complete or CCR waste streams are directed elsewhere.
- Water quality during and after construction
  - Liquids dewatered to facilitate construction must be managed in a manner that is compliant with the Gavin Plant's NPDES permit. Additionally, the PWP must be configured so that it is capable of providing proper treatment. Therefore, the design process for the pond conversion must include a detailed water balance and study of pond water quality so that all discharges are compliant during and after construction.

In summary, this approach requires detailed engineering assessments to ensure continued compliance with all applicable regulations associated with the water and ash management and significant water and ash management during and after construction. While this project is technically feasible, it is not

reasonably possible to complete the design and construction by the cease-receipt-of-waste deadline of 11 April 2021.

5.5 Wastewater Treatment Facility

Construction of a new wastewater treatment facility to treat comingled CCR and non-CCR waste streams is one potential alternative capacity option presented in the preamble to the Final Rule. In addition to the siting challenges described in Section 5.2 for a new facility, the final ELG Rule significantly limits, and in most cases prohibits, discharge of bottom ash transport water; therefore, a wastewater treatment facility is not considered a viable alternative capacity option for managing bottom ash transport water at the Gavin Plant, and was not further evaluated. Evaluation of this alternative capacity option has now been limited to treating non-CCR waste streams only.

Gavin currently discharges approximately 11 primary non-CCR waste streams to the BAP, including cooling tower blowdown water and pyrite sluices. The maximum volume of these streams can total as much as 23 to 28 MGD. The treatment of process water could be achieved through construction of a settling basin similar to the non-CCR wastewater basin, or through construction of a wastewater treatment plant with more active treatment of process water.

5.5.1 Projected Timeline

It is estimated that constructing an active wastewater treatment plant of the size needed by Gavin Plant would require at least 48 months. First, a siting study to find a location for the wastewater treatment plant would be conducted. This would require at least 12 months based on the constraints described in Section 5.2. Construction would require a major NPDES permit modification which may take a minimum of 12 months to obtain. Simultaneously, an OEPA PTI would be required to allow the design to be completed. It is assumed design and permit acquisition could occur simultaneously. Equipment fabrication and site construction would require approximately 24 months. Based on this timeline, the earliest the process water streams could be diverted to a wastewater treatment facility would be 2023. Therefore, alternative capacity would not be developed by 11 April 2021.

5.5.2 Feasibility Assessment

Constructing a wastewater treatment plant to divert non-CCR waste streams may be a feasible option in terms of constructability if site constraints described in Section 5.2 could be overcome, but would not support compliance with the final CCR and ELG rules unless combined with the conversion to dry handling. Until CCR waste streams are diverted from the BAP, the BAP cannot initiate closure.

Because constructing a wastewater treatment plant would not support ELG compliance for ash transport water, and would not accelerate compliance with the Final Rule by allowing the BAP to close, construction of a new wastewater treatment facility was not considered as viable an alternative capacity option for the Gavin Plant as conversion of the BAP. Further, as described in Section 5.4, Gavin has determined that utilizing existing infrastructure to permanently manage non-CCR waste streams is the most feasible option.

5.6 New CCR Surface Impoundment

The existing BAP could be replaced with alternative disposal capacity in a new CCR surface impoundment. However, as discussed in Section 5.2, there are locational constraints and technical challenges posed by implementing a new CCR surface impoundment.

Gavin estimates that constructing a new CCR surface impoundment could take up to 7 years. First, a siting study to find a location for the new impoundment would be conducted. This would require at least

12 months based on the constraints described in Section 5.2. Upon completion of the siting study, it is estimated that the earliest a new impoundment could be designed, permitted, constructed, and available for use would be in approximately 72 months, assuming a viable location could be identified. This brings the total project timeline to 84 months. In the preamble to the Final CCR Rule, the USEPA estimates that constructing a new surface impoundment takes an average of 31 months. This estimate was based on the average of the estimated timeframes to construct a new 18-acre impoundment (34 months) and a 7-acre impoundment (28 months). As described in Section 5.2, an impoundment to replace the BAP would require at least 58 acres, which is significantly larger than the size of the impoundments used in the USEPA's estimate, therefore justifying the significantly greater timeframe for designing, constructing, and installing a new surface impoundment as well as installing a new groundwater monitoring system. The preamble also sites another example of a 66-acre impoundment that would require 59.5 months to construct, but states that the land proposed for the new impoundment is currently developed as a non-CCR impoundment, thereby expediting site selection and construction. As discussed in Section 5.2, Gavin does not have space readily available for construction. Given this timeframe, construction of a new CCR surface impoundment would not be complete prior to the cease receipt-of-waste deadline of 11 April 2021. Consequently, although developing a new impoundment could provide viable alternative disposal capacity, it would take longer than other alternatives deemed technically feasibility, like conversion to dry handling.

In addition to the time necessary to construct a new CCR impoundment, such an approach presents other drawbacks. The current BAP is critical to the operation of the Gavin Plant and construction of a new remote impoundment to continue operation of the plant would result in significant operational challenges and complexities. Furthermore, a new surface impoundment for managing bottom ash transport water would ultimately require that the water be discharged. The final ELG rule essentially requires zero discharge of bottom ash transport water. Thus, this option was not considered a viable alternative capacity option to support ELG compliance. For these reasons, the construction of new CCR surface impoundment was not considered an alternative capacity option with high likelihood of success to allow continued operation of the Gavin Plant. As such, this demonstration also includes an evaluation of the feasibility of utilizing existing landfills and surface impoundments off-site.

5.6.1 Off-Site Disposal Capacity

In lieu of constructing a new CCR surface impoundment, disposal of Gavin's BAP materials in existing off-site landfills and disposal impoundments was also evaluated. Sites within a 50-mile radius of the plant were selected from publicly available records based on the following assumptions:

- The maximum volume of bottom ash and miscellaneous plant wastewaters, including coal-pile runoff, cooling-tower blowdown, pyrites, and various plant sump wastewaters, would be approximately 27 MGD.
- Based on an assumed density of 8.3 pounds per gallon, the mass of materials to be managed off-site would be approximately 116,000 tons per day.
- Landfills and disposal impoundments were considered the only types of existing facilities that could potentially manage the estimated quantity of CCR waste streams.
- 50 miles would be a sufficiently large enough radius to identify a range of potential off-site disposal options, but close enough to possibly allow transport.

As discussed in the following sections, candidate sites were evaluated based on physical, regulatory and schedule limitations.

5.6.1.1 Evaluation of Existing Off-Site Impoundments

One of the primary functions of a bottom ash impoundment is to treat the bottom ash slurry by allowing bottom ash solids to separate from the transport water. Achieving the permitted water quality standards prior to discharge requires sufficient residence time within the impoundment, which is primarily a function of the size and configuration of the impoundment. Only candidate impoundments with 50 or more acres of surface area were evaluated because smaller impoundments likely would not consistently provide sufficient residence time.

Candidate impoundments were identified using the USACE National Inventory of Dams database. Dams within the search radius were then screened by purpose and surface area. An appropriate existing dam, at a minimum, would have a purpose type of "tailings" (fine-grained waste) and surface area greater than or equal to 50 acres. Based on the USACE database, there are eight existing dams in West Virginia and Ohio that provide tailings disposal within 50 miles of the Plant and are larger than 50 acres, as summarized in Table 5-1 below and depicted on Figure 5-3.

Table 5-1: West Virginia and Ohio Tailings Dams

Dam Name	Surface Area (acres)	City, State	Distance from Plant (miles)
American Electric Power Project 1301 Ash Pond	55	New Haven, WV	10.2
Sporn Unit 5 Fly Ash Dam	70.3	New Haven, WV	10.4
John Amos Fly Ash Dam	180	Nitro, WV	36.0
Kyger Creek Tailings Pond	123	Addison, OH	0.9
Kyger Creek South Fly Ash Pond	66	Addison, OH	1.4
Meigs Mine No. 1 Slurry Impoundment	215	Salem Center, OH	11.5
Eramet Waste Retention Dam	76.2	Briscoe, OH	44.2
Muskingum River Upper Fly Ash Dam	148	Beverly, OH	49.8

Screening in West Virginia identified three existing dams permitted for tailings greater than or equal to 50 acres within 50 miles of the Gavin Plant that could potentially be considered suitable alternative disposal options:

- The American Electric Power Project 1301 Ash Pond is a component of the American Electric Power (AEP) Mountaineer Power Plant in New Haven, West Virginia adjacent to the Ohio River. Based on documentation available on AEP's publicly available website, the Mountaineer Plant Bottom Ash complex was not constructed with a liner that meets the requirements of 40 CFR §257.71(a). In a progress report dated March 2020, AEP indicated they plan to close the bottom ash pond by removing the ash. Due to this lack of a compliant liner and the plan to close the unit by removal of ash, this facility is not a viable location for alternative capacity.
- The Sporn Unit 5 Fly Ash Dam is part of the AEP Sporn Generating Station in New Haven, West Virginia adjacent to the Ohio River. These impoundments were officially retired in February 2012 under their West Virginia Department of Environmental Protection permits, and the generating station was decommissioned from service in May 2015. Given that the facility is closed, it is not considered a viable location for alternative capacity.

- The John Amos Fly Ash Dam is a component of the John Amos Plant in Nitro, West Virginia in the headwaters of Little Scary Creek, a tributary of the Kanawha River. Based on documentation available on the AEP publicly available website, the facility converted to using a dry fly ash handling system and no longer requires the fly ash pond. The fly ash pond was capped and closed in December 2017. Based on this closure status, this facility is not a viable location for alternative capacity.

Screening in Ohio identified five existing dams permitted for tailings within 50 miles of the Gavin Plant that could potentially be considered suitable alternative disposal options:

- Kyger Creek Tailings Pond is a component of the Fly Ash Complex at Kyger Creek Station, located in Cheshire, Ohio adjacent to the Ohio River. Based on documentation available on the Ohio Valley Electric Corporation (OVEC) publicly available website, the North Pond has been capped and closed as part of the North Ash Pond Closure Project. Due to facility closure, this facility is not a viable location for alternative capacity.
- Kyger Creek South Fly Ash Pond is a component of the Fly Ash Complex at Kyger Creek Station, located in Cheshire, Ohio adjacent to the Ohio River. Based on documentation available on OVEC publicly available website, the South Fly Ash Pond was not constructed with a liner that meets the requirements of 40 CFR §257.71(a). Due to the unlikelihood of retrofitting the facility to comply with liner requirements, this facility is not a viable location for alternative capacity.
- Meigs Mine No. 1 Slurry Impoundment is a component of Meigs Mine No. 31, owned by the Southern Ohio Coal Company, a subsidiary of Consol Energy, Inc., and located in the facility of Langsville, Ohio adjacent to Parker Run, a tributary of the Ohio River. Given the age of the impoundment, it is unlikely to meet the liner requirements of 40 CFR §257.71 of the Final CCR Rule. The impoundment is currently inactive and has been converted into a water supply reservoir (Meigs Mine Number One Water Supply Reservoir) while the Leading Creek Stream System is undergoing restoration by the federal government. Due to the impoundment use as a water reservoir, and the unlikelihood of complying with the liner requirements, this facility is not a viable location for alternative capacity.
- The Eramet Waste Retention Dam is a structure used for storage of residual sludge related to past industrial activities. Based on their website, Eramet states that the impoundment initially began operating in 1977. Given the age of the impoundment, it is unlikely to meet the liner requirements of 40 CFR §257.71 of the Final Rule. Further, the ODNR completed a risk assessment in 2016 and found the Eramet facility to exhibit a high flooding risk, high mass movement risk, and medium severe weather risk. Due to the elevated risks and unlikelihood of complying with liner requirements, this facility is not a viable location for alternative capacity.
- The Muskingum River Upper Fly Ash Dam was completed in 1975 and was a component of the former Muskingum River Power Plant, located in Waterford, Ohio. The plant was decommissioned in 2015. Due to the closure of this impoundment, this facility is not a viable location for alternative capacity.

Based on this screening, there are no existing impoundments permitted for tailings greater than or equal to 50 acres within 50 miles of the Plant that are considered a suitable alternative disposal option.

5.6.1.2 Evaluation of Existing Landfills

Landfills within 50 miles of the Gavin Plant were similarly identified using databases from the West Virginia Department of Environmental Protection and the OEPA Geographic Information System. Based on the search criteria for West Virginia, nine operating landfills were identified, as summarized in Table 5-2 below and depicted on attached Figure 5-3.

Table 5-2: West Virginia and Ohio Landfills

Landfill Name	Type	Facility Capacity (tons/day)	City, State	Distance from Plant (miles)
Disposal Service, Inc. Landfill	Municipal	~1,000	Hurricane, WV	37.0
Sycamore Landfill	Municipal	Not provided	Hurricane, WV	37.3
Northwestern Landfill	Municipal	~1,000	Parkersburg, WV	39.9
Kyger Creek	Residual Solid Waste	NA	Cheshire, OH	2.7
Gallia County Sanitary Landfill	Municipal	NA	Bidwell, OH	7.0
Beech Hollow Landfill	Municipal	4,000	Wellston, OH	23.3
Athens-Hocking	Construction or Demolition Debris	~2,500	Nelsonville, OH	36.3
Athens-Hocking Reclamation Center	Municipal	NA	Nelsonville, OH	36.9
Pike Sanitation Landfill	Municipal	4,000	Waverly, OH	46.2

An evaluation of the landfills in Table 5-2 is presented below:

- Disposal Service, Inc. Landfill is a municipal landfill located in Hurricane, West Virginia owned and operated by Waste Management Solutions. The facility is permitted to receive bottom ash, but only in dry form. Due to the limited size of this landfill and inability to accept bottom ash slurry, this facility is not a viable location for alternative capacity.
- Sycamore Landfill is a municipal landfill located in Hurricane, West Virginia owned and operated by Republic Services. A representative of the facility indicated that they did dispose of bottom ash, but only in dry form. Due to the limited size of this landfill and inability to accept bottom ash slurry, this facility is not a viable location for alternative capacity.
- Northwestern Landfill is a municipal landfill located in Parkersburg, West Virginia, owned and operated by Waste Management Solutions. Due to the limited size of this landfill and inability to accept bottom ash slurry, this facility is not a viable location for alternative capacity.
- Kyger Creek Landfill, also known as “Kyger Creek CCR Landfill”, is a component of the Kyger Creek Generating Station located in Cheshire, Ohio. The landfill is privately owned by OVEC and is regulated under its OEPA Class III Residual Waste Landfill, PTI No. 06-08283, to accept CCR waste generated by the Kyger Creek Station. The permit allows the facility to dispose of FGD sludge, chloride purge steam filter cake, fly ash, and boiler slag. Given that the landfill is privately owned and not permitted to receive bottom ash waste, this facility is not a viable option for alternative capacity.
- Gallia County Sanitary Landfill is a municipal landfill in Bidwell, Ohio owned and operated by WM Solutions. A representative from Waste Management Solutions stated that none of their facilities in Ohio have the capacity to manage the requested volume of waste. Due to the inability to manage the total volume of bottom ash material generated by the Plant, this facility is not a viable option for alternative capacity.

- Beech Hollow Landfill is a municipal landfill in Wellston, Ohio owned and operated by Rumpke. The facility is not permitted to handle bottom ash slurry, nor does it have the capacity. Given the landfill is not permitted to receive bottom ash waste, this facility is not a viable option for alternative capacity.
- The Athens-Hocking Landfill Reclamation Center does not have sufficient capacity for the total volume of CCR waste streams from the Gavin Plant. In addition, the Construction or Demolition Debris landfill is not permitted to accept CCR waste. Therefore, neither of the Athens-Hocking facilities are a viable option for alternative capacity.
- Pike Sanitation Landfill, also known as "Rumpke Waste & Recycling", is a municipal landfill owned and operated by Rumpke located in Waverly, Ohio. The facility is not permitted to nor has the capacity to handle bottom ash slurry; therefore, this facility is not a viable option for alternative capacity.

Based on this screening and site feedback from West Virginia and Ohio landfills, there are no active landfills with sufficient disposal capacity to receive the quantity of bottom ash waste generated by the Gavin Plant.

5.6.2 Feasibility Assessment

Based on the timeline presented in Section 5.6, construction of a new CCR impoundment, either on- or off-site, is not feasible within the cease-receipt-of-waste deadline. It was determined that utilizing an existing surface impoundment or landfill for disposal was not feasible. Removing the volume of material necessary for alternative disposal could require as many as 4,700 trucks per day. While technically possible, the feasibility of offsite disposal is questionable. Because of the complexity of constructing multiple distribution systems to transport the CCR waste streams to existing impoundments or landfills for disposal, the feasibility of sending waste to multiple existing facilities was not evaluated. For these reasons, use of existing surface impoundments, landfills or a new CCR impoundment are not considered feasible alternative capacity options for the BAP. Furthermore, because the final ELG rule prohibits discharge of bottom ash transport water, use of an existing landfill or surface impoundment was not considered a viable alternative capacity option for future management of bottom ash and bottom ash transport water.

5.7 Retrofit of a CCR Surface Impoundment per 40 CFR §257.102

5.7.1 Evaluation

In the fall of 2018, Gavin began evaluating conceptual engineering options for the BAP compliance with future CCR regulations.[2] As part of this evaluation, Gavin evaluated the feasibility of retrofitting the existing BAP to be in compliance with 40 CFR §257.102. This scenario assumed that bottom ash transport water flows would continue to be managed in the BAP upon completion of the retrofit project. Gavin developed multiple conceptual configurations for the retrofit of the BAP. In one scenario, the entire BAP would be evacuated of CCR, lined, and continue to be used to manage comingled bottom ash and process water flows. In another scenario, bottom ash and process water flows would be segregated into cells within the existing BAP. Only a portion of the BAP would be lined for bottom ash management, while the remaining portion would be used for process water as described previously.

Gavin developed conceptual construction sequences for the retrofit of the BAP, including required civil procedures, water management, bottom ash removal, and redirection of process flows. However, retrofitting the BAP to continue receiving and eventually discharging bottom ash transport water would not

[2] 21 August 2018 D.C. Circuit Court of Appeals opinion in the case *USWAG et al. v. USEPA* that indicated that the pond may have to close.

be compliant with Gavin's ELG requirements. Gavin continued evaluation of a future PWP to manage non-CCR waste streams as described in Section 5.4, but further assessment of a lined BAP was discontinued.

5.7.2 Projected Timeline

The scenarios developed by Gavin for retrofitting the entire BAP with a CCR-compliant liner would require approximately 56 months from detailed design to completion of construction. This timeframe also includes time for pre-design subsurface investigations and conceptual engineering evaluations which could entail approximately 12 months, for a total of 68 months. This timeframe would not be feasible by the cease-receipt-of-waste deadline of 11 April 2021.

5.7.3 Feasibility Assessment

Although technically feasible in terms of constructability, there are several considerations associated with this option, as follows:

- Disposal of existing bottom ash
  - Existing bottom ash pond sediments would be excavated for conversion to a PWP. Excavated bottom ash would be transported to the RWL or consolidated into a cell within the BAP. Therefore, this alternative is dependent on the capacity of the reduced BAP cell or the RWL to accept the bottom ash and must account for the stability of the varying textures and characteristics of sediments being stored.
- Water quality during and after construction
  - As discussed, bottom ash currently settles within the pond prior to discharge in compliance with the Gavin Plant NPDES permit. Liquids dewatered to facilitate construction must be managed in a manner that is compliant with the facility NPDES permit. Additionally, the configuration of the retrofitted pond must be capable of providing proper treatment through residence time. Therefore, the design process for the pond retrofit must include a detailed water balance and study of pond water quality to ensure all discharges are compliant during and after construction.
- Liner design
  - A significant consideration in meeting the composite liner system requirements outlined in 40 CFR §257.70 is the ability to demonstrate that the in-place native soils consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1x10-7 centimeters per second to serve as the lower component to the geomembrane. This analysis would require specific field data to be acquired and may not lead to a definitive argument for equivalency. As an alternative, a geosynthetic clay liner can be incorporated beneath the geomembrane in the liner system rather than demonstrating that the existing soils either directly or through an equivalency demonstration can meet the requirements.

Given that Gavin is pursuing conversion to a dry handling process, CCR waste streams would no longer be managed in the BAP. Therefore, while retrofitting with a liner for future CCR storage may be technically feasible, it is not feasible within the USEPA deadlines, nor would it be required for Gavin once the conversion to a dry handling process is complete. Furthermore, because the 2020 Final ELG Rule requires essentially zero discharge of bottom ash transport water, this option was not considered a viable alternative capacity option for ELG compliance.

5.8 Summary of Feasibility

A global assessment of the alternative capacity options is presented in Table 5-3, and a justification for the final selected approach for CCR compliance is presented. This table presents an estimated overall timeline for completion of each alternate capacity option based on current understanding of each project's components; however, the actual duration may be different based on permitting, available resources, and weather. Alternate capacity options were evaluated for their technical feasibility of achieving CCR rule and ELG rule compliance.

Table 5-3: Assessment of Alternative Capacity Options

Alternative Capacity	Overall Assessment	Constructability Assessment	Overall Timeline for Completion (months) [a]	Technical Feasibility of Achieving CCR Compliance by 11 April 2021
Conversion to Dry Handling	Zero discharge of bottom ash transport water, therefore supports CCR and ELG compliance	Feasible	51[b]	Not feasible
Non-CCR Wastewater Basin (Converting the BAP to a PWP)	Lack of readily available space on-site or off-site to construct new facility, therefore converting existing BAP to a PWP was evaluated	Feasible	72[b]	Not feasible
	Feasible option upon sourcing alternative capacity for bottom ash			
New Wastewater Treatment Facility	WWTP for bottom ash transport water not ELG compliant	Not feasible, lack of readily available space on-site or off-site to construct new facility	48	Not feasible
	WWTP for process water only does not help to initiate closure of the BAP sooner			
	Alternative disposal capacity for bottom ash transport water must be available during construction, therefore CCR and non-CCR waste streams must be managed in the BAP			
New CCR Surface Impoundment/Off-Site Disposal Capacity	Significant geo-technical investigations, and studies required, protracting schedule.	Not feasible, lack of readily available space on-site or off-site to construct new facility	84	Not feasible
	Requires discharge of bottom ash transport water during operation, not ELG compliant			

Alternative Capacity	Overall Assessment	Constructability Assessment	Overall Timeline for Completion (months) [a]	Technical Feasibility of Achieving CCR Compliance by 11 April 2021
	No existing landfills or impoundments in a 50-mile radius are viable options for alternative disposal, logistical challenges of transporting large quantities of waste offsite daily			
Retrofit of a CCR Surface Impoundment	Requires discharge of bottom ash transport water during final operation, not ELG compliant	Feasible	68	Not feasible
	Alternative disposal capacity for bottom ash transport water must be available during construction, therefore CCR and non-CCR waste streams must be managed in the BAP			

[a] *Includes preliminary technology evaluations or preliminary design studies*

[b] *Project is ongoing. Overall timeline for completion includes the time already invested in achieving alternate capacity through this option.*

5.8.1 Final Proposed Approach

Gavin selected a multiple technology system for the fastest feasible compliance approach with the Final Rule, as well as the 2020 ELG Rule to which Gavin is subject. Gavin will cease sluicing bottom ash by converting to a dry handling system by March 2023, close the BAP, and convert a portion to a PWP for remaining process water flows.

Details for achieving Gavin's alternative capacity option are described in Section 6.

6. WORK PLAN FOR ACHIEVING ALTERNATIVE CAPACITY (§257.103(F)(1)(IV)(A)

6.1 Approach Selected to Achieve Alternative Capacity (§257.103(f)(1)(iv)(A)(1))

As described in Section 5, Gavin has selected to achieve compliance with the CCR and ELG Final Rules in two separate, but linked, projects at Gavin: (1) construction of two dry bottom ash handling systems, one for Unit 1 and one for Unit 2; and (2) closure of the BAP and conversion of part of that pond to a PWP. Unless Gavin were to cease generating power, closure of the BAP cannot begin until both power generating Units are converted to dry ash handling and bottom ash transport water is no longer generated. Many of the steps that are necessary *before* BAP closure can begin, will be done concurrently with the conversion to dry ash handling.

As discussed in more detail below, the conversion to dry handling encompasses the following major steps:

- Technology evaluation and selection (completed)
- Bid, evaluation, and award for the ash handling equipment (AHE) provider (completed)
- Detailed design engineering for AHE fabrication
- Detailed design engineering for AHE installation
- AHE manufacturing
- Plant modifications necessary to accommodate installation of the AHE
- Extended (12-week) outages to allow for AHE installations, one per unit
- Equipment walk down, punch list, and personnel training

In addition, as discussed above, the extended outages for Units 1 and 2 must be coordinated with the energy regulators, cannot occur in the winter or summer, and must occur at different times due to availability of skilled personnel.

As discussed in the following sections, the BAP closure project encompasses the following major steps:

- Conceptual engineering and design (completed)
- Detailed subsurface investigations of the BAP and development of water balance (in progress)
- Detailed engineering and design
- Contractor selections
- Permitting
- Dewatering of the BAP (to begin once outage for installation of second AHE starts)
- Consolidation of CCR in portion of BAP for cap and closure
- Construction of permanent embankment between CCR and future PWP
- Conversion of portion of clean-closed BAP to PWP

Sections 6.1.1 and 6.1.2 summarize the components of the selected approaches.

6.1.1 Wet to Dry Conversion for Bottom Ash Transport

Gavin evaluated three wet-to-dry conversion technologies and selected the underboiler DCC, also known as a "Submerged Flight Conveyor" or "Submerged Drag Chain Conveyor," over the other technologies evaluated. This system does not generate ash transport water, has proven reliability, and has relatively few moving parts. In addition, the DCC system has proven successful at the scale and size of the Gavin Plant. The other technologies evaluated did not have proven reliability at the scale required for Gavin. This section summarizes how a new dry ash handling system will operate.

The DCC will replace the existing equipment located directly beneath the boiler. The existing bottom ash hopper, ash clinker grinders, and boiler hopper ash jet pumps will be removed and replaced with a new wet hopper and DCC. As bottom ash falls from the boiler into the wet hopper, it will fracture into smaller pieces and settle to the bottom. A submerged conveyor, consisting of chain with metal flight bars, will drag the ash along the bottom of the conveyor to the inclined dewatering section where the chain conveyor will pull bottom ash up the ramp and out of the water. Bottom ash will dewater while being pulled up the incline by the conveyor, and the water will drain back into the wet hopper. The inclined ramp will exit the boiler building and drop the dewatered ash in a new concrete bunker sized for approximately 3 days of storage at the design production rate. The ash in the bunker will be transferred by a front-end loader to haul trucks for transport to the RWL.

The economizer ash and gas recirculation hopper ash will be transferred by a series of dry flight conveyors, and then by vertical chutes, to the new, submerged DCC. The economizer ash will be co-mingled with the bottom ash in the submerged portion of the DCC, then dewatered and transferred to the bunker for disposal in the RWL. Pyrites will continue to be sluiced to the repurposed PWP once operational.

Advantages of the DCC system will be a lower auxiliary load, the replacement of the existing ash hopper, the robust and proven conveyor design, and the elimination of transport water. Water will be added to the system to make up for water lost to evaporation from the boiler and hot ash, and to maintain the water temperature of the closed system. The outage requirement for removing the existing bottom ash hoppers and replacing with a new DCC is approximately 9 weeks for Unit 1 and 13 weeks for Unit 2, as described in more detail in Section 6.3.1.4.

To achieve alternative capacity for the CCR waste streams[3] currently being disposed in the BAP, Gavin will convert to a dry ash handling process. Based on this approach, alternative capacity for bottom ash disposal and initiation of closure of the BAP will be achieved by 10 March 2023. As demonstrated in Section 5, no alternative capacity for management of CCR and non-CCR waste streams outside of the BAP currently exist nor can such capacity be constructed by 11 April 2021. Further, CCR and non-CCR waste streams must continue to be managed in the BAP during the conversion to dry handling. Non-CCR waste streams will be managed in the converted BAP (as a PWP), after project completion.

6.1.2 Closure of the Existing Bottom Ash Pond

Gavin's plan for closure of the BAP is both removal and closure in-place of CCR waste in accordance with 40 CFR §257.102. The Final Rule states that "closure of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit must be completed either by leaving the CCR in place and installing a final cover system or through removal of the CCR and decontamination of the CCR unit."

The BAP will be closed through the removal of CCR, consolidation, and capping in a portion of the BAP footprint behind a new berm. The remaining portion of the former BAP will be converted to a PWP for

[3] As noted in Section 3.1, CCR waste streams herein refers to bottom ash and bottom ash transport water.

non-CCR waste streams. The PWP is expected to be operational in late 2024. A conceptual layout of the repurposed PWP is presented on Figure 6-1.

6.2 Narrative Description of Progress to Date to Achieve Alternative Capacity (§257.103(f)(1)(iv)(A)(4))

6.2.1 Conversion to Dry Handling

Gavin performed thorough evaluations of multiple dry ash handling technologies. These evaluations began in March 2019 and were completed in April 2020 with the selection of a conversion technology. Gavin hired a third party to work directly with technology suppliers to develop detailed proposals specific to the Gavin Plant, which required multiple field visits and report iterations as the consultant continued their evaluations. Each supplier provided relevant cost, schedule, logistics, and technology information as part of their proposal. Three technologies (identified in Section 5.3.1) were evaluated based on regulatory compliance, cost, reliability, and constructability. Gavin selected the DCC technology option as the most feasible based on its long-term proven design and track record at similar-sized units, compared to the other two technologies evaluated. The schedule for implementation of all three technologies was projected to be the same.

Upon completion of the technology evaluation and selection process, specifications and a bid package for the detailed engineering, design, and fabrication of the new AHE were developed and issued for bid in April 2020. Gavin received bids from three qualified bidders and evaluated the responses. Gavin selected an AHE supply contractor in June 2020. The AHE supply contractor will begin detailed design in November 2020; the detailed design process is presented in Section 6.3.1.1.

In addition to selecting a contractor for the detailed AHE engineering and design, Gavin began the process of selecting a contractor to perform the installation of the AHE. It is anticipated that selection will occur by the end of 2020.

While working on the AHE supplier and installation contracts, Gavin began developing bid packages for the additional plant modifications needed prior to the installation of the AHE. As part of the year-long technology evaluation, Gavin identified the need to relocate and redesign the second pass downcomer line prior to installing the AHE on each unit. The existing lines would be in the way of the new AHE. Gavin elected to perform this work as a separate scope from the AHE. Gavin solicited bids from seven contractors to perform the design, engineering, and fabrication of a new line and selected a contractor in August 2020. The lead time for the new lines is approximately 6 to 8 months and fabrication began in August 2020.

Section 6.3.1 describes in detail the remaining steps to complete the conversion to dry handling.

6.2.2 Conversion of the Bottom Ash Pond

Gavin initiated the evaluation of conceptual engineering options for BAP compliance in anticipation of potential future revisions to the CCR regulations following the 2018 D.C. Circuit decision. Relevant schedule, regulatory compliance, and constructability risks were evaluated to guide the decision-making process. BAP configurations were evaluated considering management of future process water flows, storage of CCR waste streams, and coordination with the conversion to dry ash handling (which was evaluated concurrently). The BAP will no longer be used to manage CCR waste streams after converting to a dry handling system; the BAP will be closed and converted to a PWP. The conceptual engineering evaluations concluded that subsurface investigations must be conducted to support the design of the new pond configuration.

Gavin contracted for a series of geotechnical investigations to evaluate the materials and subsurface conditions in the BAP, including data relative to the existing ash, clay material lining the BAP, sediments, and accumulated soils. Each phase of the investigations included development of the appropriate scope, a health and safety plan specific to the conditions during the current pandemic, coordination by a geotechnical engineer, procurement of equipment, field work, laboratory testing, data interpretation, and preparation of reports summarizing the results. Below is a summary of work to date. Section 6.3.2.1 describes the final, planned subsurface investigation to be completed.

- Bathymetric and topographical surveys of the BAP were completed in March 2020 and are presented on Figure 6-2.
- Phase 1—Part 1 investigated the BAP to estimate characteristics of the CCR material, identify the interface elevation between the CCR material and underlying clay layer, and to measure the geotechnical parameters of these materials (e.g., preliminary strength and compressibility characteristics). To meet the project objectives, a total of 53 cone penetrometer (CPT) borings were advanced into the subsurface in a grid pattern across the BAP (Figure 6-2). The CPT borings for the accessible locations were completed in March and May 2020, after a 6-week pause due to site restrictions related to the COVID-19 pandemic. The geotechnical investigation also included the completion of hollow-stem auger borings at ten selected CPT boring locations to collect soil samples to correlate the CPT data. The hollow-stem auger boring portion of Phase 1—Part 1 was completed in June 2020. Laboratory analysis was completed in July 2020 and the draft report was provided to Gavin on 27 August 2020.
- Phase 1—Part 2 included advancing borings into the subsurface in areas located around the perimeter of the existing BAP embankment to evaluate the subsurface in these perimeter areas (as described in Part 1 above) as well as to install piezometers within the CCR material. The Part 2 investigation evaluated these embankments to inform design of the berm to be constructed within the BAP. Piezometers will provide additional supplemental data to further evaluate dewatering alternatives. Phase 1—Part 2 was conducted 11 June to 15 July 2020 and a draft report was provided to Gavin on 26 August 2020.

In addition to the geotechnical investigations described, Gavin commissioned a Pond Closure Study in early 2020 to examine a conceptual approach to closure and repurposing of the BAP, including future water treatment and a pond settling model to determine whether a future PWP would continue to meet current NPDES discharge permit limits. After review and further discussion of the Pond Closure Study, Gavin concluded an alternative closure approach should be pursued. As described in Section 6.3.2.2, the Pond Closure Study will be updated.

6.3 Narrative Description of the Timeline for Remaining Steps to Achieve Alternative Capacity (§257.103(f)(1)(iv)(A)(3))

6.3.1 Conversion to Dry Handling

Conversion of the units will occur during major outages for each unit. There are significant steps that must be taken before construction can begin, including: design and engineering, procurement and contractor selection, equipment fabrication and delivery, and site preparation. This section provides an overview of the steps remaining to achieve alternative capacity through the conversion to a dry handling process.

6.3.1.1 Engineering and Design

Three primary engineering efforts must be completed: (1) design the AHE technology for the Gavin units, (2) install the equipment at the Gavin Plant, and (3) make at least one significant change to the current configuration of the Gavin units to accommodate the new equipment.

As noted in Section 6.2.1, the new AHE technology has been selected and issued for bid for detailed design and engineering by the AHE supplier. As of June 2020, Gavin finalized the supply contract for the AHE, and in November 2020 original equipment manufacturer engineering will begin and last through June 2021.

Design engineering by the AHE supplier will include development of systems, piping, structural, and electrical engineering packages, and the preparation of the final system programming and operations and maintenance manuals. The AHE supply contractor will prepare many of the AHE design packages concurrently, and each package will require a number of steps. The contractor will prepare and submit an initial design package to Gavin. Depending on the complexity of the package, this initial preparation may take 1 to 12 weeks. The contractor's design schedule allows for Gavin to have a 2-week review period for each package, after which, the contractor allows for between 1 and 4 weeks to address Gavin's comments and finalize the design. Upon completion of the original equipment manufacturer engineering, the AHE supply contractor will begin fabrication of the AHE system. This is discussed in Section 6.3.1.3.

Detailed engineering to install the AHE will also be necessary for the equipment design packages to be properly integrated into the Gavin units. Installation engineering will begin after the bid, evaluation, and award of the installation contract described in Section 6.3.1.2 and will require approximately 11 months. Installation engineering will begin in January 2021.

Installation engineering will include the design and specifications for the control system; site preparation; and mechanical, structural, and electrical design packages to support the required plant modifications to accommodate the new AHE.

The AHE installation contractor will also be tasked with the exploratory borings and excavation required to install foundations for the new ash hopper, which is included in the engineering timeframe presented in Gavin's schedule. This effort was originally scheduled during the detailed design engineering phase but has been postponed to the construction phase because of site access restrictions due to the COVID-19 pandemic.

As discussed in Section 6.2.1, Gavin selected a contractor to engineer the rerouting of the second pass downcomer piping in the interference area. A figure depicting the conflict is shown on Figure 6-3. Gavin issued the contractor a notice to proceed in August 2020. The contractor began design on the second pass downcomer, valves, supports, enclosure, and field materials in August 2020. This design and engineering will be complete by the end of October 2020. Procurement of the second pass downcomer pipe materials began in August 2020.

6.3.1.2 Procurement and Contractor Selection

Gavin completed the bid, evaluation, and award processes for the AHE supply contractor to design and fabricate the DCC, as well as the contractor to design and fabricate the second pass downcomer lines. The remaining contracting package is for installation of the AHE equipment. Contractor selection for the installation of the AHE began in September 2020 and is expected to be complete by the end of the 2020.

6.3.1.3 Equipment Fabrication and Delivery

The AHE project is constrained by the availability of the fabricators because of the large size of the Gavin plant (which limits the number of manufacturers who can produce the needed equipment) and the high demand for dry ash handling equipment. The estimated lead time for the AHE system is approximately 12 months per unit and the equipment will be fabricated sequentially. This includes procurement and fabrication of all components of the system, including instrumentation, valves, motors, piping, structural materials for the hoppers and chain, and control panels. While design of the AHE will begin in November of 2020 and is expected to be completed in June 2021, the AHE supply contractor is expected to begin

releasing materials for Unit 1 equipment in April 2021, before completion of design in order to support the construction schedule. Release of materials will be dependent on the progress of the detailed design process.

Components of the AHE system are expected to have lead times ranging from 1 to 4 weeks and as long as 22 weeks each for more Gavin-specific equipment such as the hydraulic power units, conveyor sections, and hoppers. The AHE supplier must procure parts from multiple vendors and has accounted for that coordination in their schedule accordingly. Also included in the schedule is about a 2-week period for each piece of equipment to be inspected prior to delivery to the Gavin Plant.

As noted, the lead time on the new second pass downcomer lines is 7 months. This equipment must be relocated on each unit prior to the installation of the AHE. The longest lead time component of the system is the piping, which has been released into fabrication as of August 2020. The contractor will have the pipe materials prefabricated with drain nipples and valves installed and ends prepped for welding. Procurement of the remaining materials (valves, supports, enclosure, field materials) will begin in October of 2020. All materials for the second pass downcomer modifications are anticipated to be fabricated and delivered to the site in February 2021.

6.3.1.4 Construction

The general construction sequence to convert each unit first entails relocation of the second pass downcomer line and then installation of the AHE equipment.

The timing for the second pass downcomer relocation varies between Unit 1 and Unit 2, but otherwise the sequence is expected to be the same. Gavin plans to relocate the second pass downcomer line on Unit 1 during a minor Unit 1 outage in 2021. Rerouting the second pass downcomer for Unit 2 will be combined with the DCC installation during a major outage scheduled in 2023. Gavin expects that lessons learned from the Unit 1 work can be applied to the rerouting for Unit 2, allowing for a more efficient construction process over a single, albeit longer, Unit 2 outage.

Two months of site preparation and below ground construction, as well as 2 months of aboveground mechanical and electrical construction, will be necessary for each unit prior to the unit's outage. Included in this preparatory work will be the construction of the ash hopper. This ash hopper will be a concrete pad with three walls located outside of the building. The ash hopper will provide temporary storage of the dry ash before hauling to the RWL.

The dry bottom ash system requires plant upgrades to support the new equipment and modifications due to several conveyor interferences, in addition to the second pass downcomer relocation described above. The pulverizer door, tempering air duct, nitrogen tank, control air receiver tanks, pulverizer cooling water lines, pyrite lines, and multiple electrical and air supply feeds must be relocated to accommodate the AHE. This relocation work will be performed during site preparation prior to the scheduled major plant outages. Planning and design for these modifications has not been conducted; therefore, the duration of these activities has been estimated and is covered under the preparation work for each unit outage.

The bottom ash hoppers of Units 1 and 2 at Gavin Plant will be replaced with the DCC systems. The DCC will be a modular design consisting of one head section, one tail section, one bent section, and straight sections in horizontal and ramp orientations, depending on the total length required. The modular sections will be supplied with various mechanical components (idlers, nozzles, and sprockets). The mechanical components will be installed at the factory. The chain and flights will be installed in the field by the AHE installation contractor after all the modular sections have been assembled to form the DCC unit.

Unit 1 will cease sluicing CCR to the BAP at the start of the major outage in 2022. Unit 2 will cease sluicing CCR to the BAP at the start of the Unit 2 major outage in 2023. This schedule supports Gavin's request for an extension of the cease receipt of waste deadline for the BAP to 10 March 2023.

A driving factor in the completion of the wet to dry conversion project is the need to schedule plant outages. The Gavin Plant operates two units and each unit must be offline while being converted to a dry ash handling system. These outages must be scheduled with the regional transmission organization, PJM Interconnection, L.L.C., to facilitate grid reliability during the outage. The Gavin Plant schedule for the outages for Units 1 and 2 will be approximately 3 and 4 months, respectively. The outages for installation of the AHE have been staggered due to availability of union craft workers, generation demand needed for delivery to PJM, the complexity of ash handling conversion projects, and other planned work during these outages. Because of the high demand for workers for each outage, staggered outages provide a greater chance of success but also extend the overall timeframe for the project. Gavin has already coordinated preliminary outage dates with PJM, which will be confirmed at least 6 months in advance. Outage timing is competitively sensitive market information and detailed schedules with outage timing have been provided to USEPA separately as confidential business information.

6.3.1.5 Start Up and Implementation

The schedule accounts for a final walkdown and punch-list period after the completion of each outage, followed by a 2-week training for Gavin operators on the new system.

6.3.2 Conversion of the Existing Bottom Ash Pond

This section provides an overview of the remaining steps required to initiate and complete closure of the BAP in accordance with the Final CCR and ELG Rules, including pre-design, engineering and design, contractor selection, equipment fabrication and delivery, permitting, and construction. Gavin does not anticipate the need for a start-up and implementation phase of the project. A visual presentation of this schedule is presented in Section 6.4. Many activities will be performed concurrently with the conversion to a dry handling process and are interdependent. Critical items for the completion of this project include:

- Completion of the Phase 2 Subsurface Investigation;
- Detailed engineering design;
- Bid, evaluation, and award of a general contract for civil work;
- Permit acquisition; and
- Coordination of unit outages for conversion to dry handling.

Bottom ash transport water and non-CCR waste streams will continue to be managed in the BAP until the second outage for conversion to dry handling has begun. Construction for the closure and repurpose of a portion of the BAP to a new PWP will begin once flows of CCR cease and other waste streams have been temporarily rerouted to allow for safe and efficient work in the BAP footprint.

The schedule will be subject to change as the subsurface investigations and design process continues. The construction schedule is based on assumed and projected quantities and production rates, which may change as the subsurface investigations are completed and the detailed engineering design is developed. The schedule presented reflects built-in contingencies for these items. Gavin will continually evaluate the BAP closure plan to determine whether improvements can be made to the process or schedule.

6.3.2.1 Pre-Design Investigations

As described in Section 6.2.2, subsurface investigations to support the design of the BAP conversion project are ongoing as of October 2020. As discussed in Section 5, closure of the BAP is complex, as it must facilitate CCR stability, dewatering quality, and water treatment for compliance with the facility NPDES permit. These complexities will be mitigated by continuing geotechnical and water quality studies as part of the design work. While conceptual evaluations and feasibility studies have been conducted, geotechnical investigations and engineering evaluations will also aid in determining the optimal configuration and construction sequence.

Phase 2 is the remaining pre-design investigation within the BAP. Borings will penetrate the clay layer beneath the BAP into the sands below. Information gathered from this investigation will be used for the design of the berm separating the consolidated CCR from the PWP within the footprint of the BAP. Information will also be applicable to design of the temporary isolation structure to be designed and constructed by the construction contractor. The locations of the six planned borings are being finalized currently and the contractor scope is expected to be completed in January 2021. Field work for Phase 2 is currently scheduled for the first quarter of 2021 with lab results finalized in May 2021

6.3.2.2 Detailed Design and Engineering

Revisions to the pond closure conceptual design necessitates updating the Pond Closure Study from June 2020. The Pond Closure Study will determine the appropriate locations for the Phase 2 investigations described in 6.3.2.1, as well as to confirm aspects of the conceptual design for detailed design engineering. The Pond Closure Study will be updated over 2 months beginning in November 2020.

Once the Pond Closure Study has been updated and the lab results from the Phase 2 investigations have been received, detailed design engineering can begin. Overall, Gavin anticipates that the detailed design engineering process will take about 6 months. Included in the 6-month design process is time for creating more detailed project schedules and estimates for bidding purposes. Specifications and plans will be developed for grading, process and instrumentation, water treatment, dewatering, earthwork, structural design, the isolation berm, and dam permit. Gavin anticipates that dewatering design by a third party, after detailed design, may be needed and would be completed by the dewatering contractor in early 2022 once a dewatering contractor is selected.

During dewatering and CCR consolidation, the water in the BAP may need treatment prior to being discharged in compliance with the NPDES permit. A supplemental chemical water treatment system will be included in the project plans to reduce turbidity, TSS, and the concentration of regulated metals before discharge via Outfall 006. Design of the chemical feed system has been included in the overall design schedule. This effort will be coordinated with the dewatering work, derived from the subsurface investigations and pond settling model. The chemical feed system design will be finalized upon completion of the submittal process with the selected vendor.

6.3.2.3 Contractor Selection

Closure of the BAP is in the early design stage; as such, contractor selection has not begun. Gavin anticipates three major contractor scopes of work: civil/earthwork under a general contractor, a dewatering contractor, and a water treatment contractor for the rerouted flows.

Gavin will solicit bids from a general contractor for the majority of the work in the fall of 2021, when the detailed engineering design, construction drawings, and bid packages are near completion. Gavin anticipates that the bidding period, evaluation, and award will take approximately 12 to 13 weeks.

Dewatering of the BAP may be contracted separately, or potentially as a subcontract to the general contractor. Gavin has planned for a separate contracting process to bid, evaluate, and award the pond dewatering work, in parallel with the general contractor bid/evaluation/award process, over a period lasting approximately 9 weeks.

A separate contractor may be selected to procure and install the chemical treatment anticipated for the temporarily rerouted flows. Gavin anticipates that the bidding period, evaluation, and award will take approximately 9 to 10 weeks.

Gavin expects that the construction documents will be issued for bid in November 2021, with contractor awards in early 2022. Contractor mobilization will thereafter be dependent on obtaining the necessary permits listed in Section 6.3.2.5.

6.3.2.4 Equipment Fabrication and Delivery

Closure of the BAP and repurposing to the PWP is not expected to require fabrication of significant components. Piping needed to accommodate rerouting of several flows to temporary treatment is built into the current schedule. The schedule allows for approximately 7 months to fabricate the chemical treatment package planned for dewatering the BAP. Construction of the berm will require borrow material from an existing Gavin property, and is discussed further under Section 6.3.2.6.

6.3.2.5 Permitting

Dependent upon the final design, the BAP conversion may be subject to state and local permitting as described herein.

State Permitting

The OEPA would authorize several state permits including a Wastewater PTI, Construction Storm Water General Permit, and modifications to Gavin's existing NPDES permit. Gavin may request a modification to the NPDES permit to allow for the temporary treatment of process water during construction. Requirements to modify the existing NPDES permit has the longest time frame, at 180 days, and has been included in the schedule.

The ODNR would authorize a Dam Reconstruction Permit, as well as any required state-level Priority Rare, Threatened, or Endangered species consultations, for construction of the berm behind which the CCR would be consolidated. Typically, Dam Reconstruction Permits require between 6 months and 1 year to obtain, and the actual duration will depend on certain factors that are outside of Gavin's control, such as the availability of agency staff to review submitted materials. Of significant note with this permit is that the ODNR's 45-day review period begins anew with each iteration of a submittal/resubmittal of additional information, which could potentially result in delays to the permitting timeline, and would also require, in addition to a statutory filing fee, a surety bond (or equivalent) in excess of one-half the estimated cost of construction. If needed, Priority Rare, Threatened, or Endangered species consultation would take up to 45 days.

Based on the final configuration of the BAP described in Section 6.1.2, Gavin does not anticipate that an air PTI or associated air modeling will be required for the temporary construction activities or final operating condition of the BAP closure project.

Local Permitting

The Gallia County, Ohio Floodplain Office would authorize any required floodplain permitting. Approximately 30 days should be allotted for the Floodplain Coordinator's review upon submittal of a complete application.

The Gallia County Engineer would be the authority for any required access permit and road use maintenance agreement. A pre-construction meeting with the Gallia County Engineer is anticipated prior to their review process. The access permit and road use maintenance agreement would be required if borrow materials from the landfill would be hauled to the BAP or if materials are removed from the BAP and transported to the RWL, resulting in the crossing of county roads. The Gallia County Engineer would require, at a minimum, information regarding type of material being hauled, vehicle weights, culverts crossed, and other pertinent information. If any culverts (new or upgrades) would be required, Gavin would be responsible for the improvements. A review period of 30 days is anticipated upon submittal of completed applications.

6.3.2.6 Construction

Closure of the BAP and construction of the PWP will occur in parallel to the greatest extent practicable. Activities will consist of temporarily rerouting flows currently directed to the BAP, dewatering the BAP, consolidating the CCR and sediment in the southwest portion of the existing BAP, placing borrow material for the berm, capping the CCR behind the berm, preparing the slopes of the new PWP, and rerouting the process water flows back to the PWP before placing the PWP in service.

The construction schedule is based on assumed or projected quantities and production rates, which may evolve as the design is developed and construction contracts are awarded. This section provides an overview of the construction sequence developed as of October 2020.

The general contractor will mobilize to the site and begin rerouting the existing flows to the BAP. The bottom ash sluice flows will cease in March 2023 in coordination with AHE installation (see Section 6.3.1). Gavin anticipates temporarily routing process water flows through treatment or directly to the Reclaim Pond/outfall during construction.

Once flows have been routed away from the BAP, lowering the free water will begin. When much of the free water has been drained to the top of ash and sediment, work will start on dewatering the CCR and sediment at the bottom of the pond, and then moving the CCR material to the southwest corner of the pond for consolidation. A combination of trenches and a vacuum well point system are planned for dewatering of the pond. Water removed from the pond will be treated using a temporary treatment system before flowing into the Reclaim Pond and eventually out of Outfall 006. CCR will be consolidated over a projected period of 6 months based on a production rate of 8,000 cubic yards of CCR material per day. Geotechnical investigations, as described previously, will confirm the quantities of ash to be relocated, and therefore the final production rate and duration of this activity may vary.

Borrow material for the berm, estimated at 140,000 cubic yards, will be sourced at an existing location owned by Gavin northwest of the Gavin Plant. Preparation of this site will occur while dewatering and ash consolidation takes place in the BAP footprint. Clearing and grubbing along with site access routes for excavation equipment will take place prior to removal of borrow material. Clay borrow material will be taken and hauled to the project and the berm will be built to hold consolidated ash in place (see schematic of berm location on Figure 6-1). The CCR will be capped with a final cover system compliant with 40 CFR §257.102.

The bottom of the remaining portion of the pond, now cleared of CCR, will be graded and prepared for the PWP. Riprap will be placed on slopes of the PWP, where needed, to protect from erosion.

As depicted on Figure 3-2, the inflow piping currently along the east side of the pond is anticipated to be restored to the permanent PWP. Connections to the PWP for the cooling tower blowdown, pyrites, turbine room sump, overflow sump, pretreatment sump, overflow from the dry fly ash transfer building sumps, and coal pile runoff flows will be restored and the PWP will be placed in service.

It is anticipated that the BAP closure project and PWP repurposing project will be substantially complete by November 2024.

6.4 Visual Representation of the Timeline for Remaining Steps to Achieve Alternative Capacity (§257.103(f)(1)(iv)(A)(2))

A visual representation of the construction schedule described in Section 6.3 is shown in Appendix B. Gavin provided a separate, detailed schedule to USEPA that includes confidential business information, specifically identification of the unit outages and activities tied to the unit outages which is competitively sensitive information with respect to the PJM market. The construction schedule is generally based on 5 days per week of work, with weekend work as allowed to recover from reasonable weather delays. The construction schedule is based on assumed and projected quantities and production rates, with minimal time added to activity durations to account for weather and unforeseen delays. The BAP closure and PWP schedules may change as the subsurface investigations are completed and the design is further developed.

7. COMPLIANCE DEMONSTRATION WITH ALL REQUIREMENTS OF SUBPART PER (§257.103(F)(1)(IV)(B))

The CCR Rule compliance program has been, is currently, and will continue to address all applicable engineering, groundwater monitoring, recordkeeping, notification, and public information accessibility requirements of the CCR Rule. In accordance with 40 CFR §257.103(f)(1)(iv)(B) of the Final CCR Rule, Gavin presents the following required information:

7.1.1 Certification of Compliance

A Certification of Compliance for all parts of 40 CFR, Part 257, Subpart D is presented in the front of this document.

A certification of compliance with all parts of 40 CFR §257.91 is presented in the Gavin BAP Groundwater Monitoring System Certification uploaded to the Gavin CCR publicly accessible website dated 26 July, 2016.

7.1.2 Design and Construction of Groundwater Monitoring System

7.1.2.1 Maps of Groundwater Monitoring Well Locations

The BAP groundwater monitoring well network consists of three upgradient monitoring wells (BAC-01, MW-1, MW-6) and four downgradient monitoring wells (BAC-02, BAC-03, BAC-04, BAC-05). BAC-01 through BAC-05 were installed in December 2015, while MW-1 and MW-6 were installed in 1993.

Two new wells, BAC-07 and BAC-06 were constructed in August 2020. As of October 2020, Gavin is preparing a new Well Network Certification to include these two wells. A map of the groundwater monitoring well locations is presented in Appendix C, which includes Figures 7-1, 7-2 and Figure 7-3.

7.1.2.2 Well Construction Diagrams and Drilling Logs

Boring Logs and Well Construction Logs are presented in Appendix D (Geosyntec, 2016).

7.1.2.3 Groundwater Flow

Maps that characterize the direction of groundwater flow accounting for seasonal variations are presented in Appendix C, Figures 7-1 and 7-2. Note that this assessment does not yet include the recently constructed wells, BAC-06 and BAC-07.

7.1.3 Constituent Concentrations

Constituent concentrations, summarized in table form, at each groundwater monitoring well monitored during each sampling event are presented in the Annual Groundwater Monitoring and Corrective Action Reports. A copy of the latest report, dated 31 January 2020, is included in Appendix E for reference. Initial sampling to establish upgradient well baseline data began in 2016 and has been conducted semi-annually since. Note that this assessment does not include the recently constructed wells, BAC-06 and BAC-07, which will be included in the next semi-annual sampling event.

7.1.4 Site Hydrogeology

As presented in the Location Restriction Report (ERM, 2018) posted to Gavin's publicly accessible CCR website, the natural soils at the BAP consist of a layer of alluvial silt, clay, and fine sand over glacial outwash deposits of variable thickness. The Natural Resources Conservation Service has mapped the areas surrounding the BAC and power generating units as predominantly Elkinsville silt loam with other

types of silt loam. Prior soil borings advanced at the BAC revealed that the outwash materials are 25 to 35 feet thick, consist of fine to coarse sand, and form the uppermost aquifer. The overlying alluvial silt, clay, and fine sands form a confining layer over the outwash aquifer. The thickness of this confining layer ranges from 7.7 feet to 34.4 feet with an average of 20.0 feet (Geosyntec 2016) in the vicinity of the BAC. The base of the BAC is more than 5 feet above the upper limit of the uppermost aquifer, and therefore the Gavin BAC, including the BAP, is in compliance with 40 CFR §257.60. Based on geologic maps from the United States Geological Survey, the uppermost bedrock underlying the BAC likely consists of shale and/or sandstone belonging to the Conemaugh Group of Pennsylvanian Age. These sedimentary rocks dip gently to the east and southeast in this location.

7.1.5 Corrective Measures Assessment per §257.96

Groundwater monitoring at the BAP has never required an Assessment Monitoring Program and no corrective measure assessments have been required. Alternative Source Demonstration (ASD) Reports have been completed to explain all observed statistically significant increases. ASD reports are submitted with the Annual Groundwater Monitoring and Corrective Action Reports for the applicable year.

Statistically significant increases (SSIs) were identified in the 2017, 2018, and 2019 annual groundwater monitoring events. ASD Reports were developed for each sampling event to discuss each SSI. The ASD Reports prepared to date conclude that sources other than the BAP were responsible for the identified SSIs. As required by 40 CFR § 257.94(e)(2), these ASDs were completed within 90 days of detecting the SSIs and were certified by a qualified professional engineer. The BAP remains in detection monitoring and no remedial actions have been required to date.

ASD Reports are placed in Gavin's operating record and uploaded to the publicly available CCR website with the Annual Groundwater Monitoring and Corrective Action Reports.

7.1.6 Progress Reports on Corrective Action Remedy Selection and Design per 257.97

Groundwater monitoring at the BAP has never required an Assessment Monitoring Program and no corrective measure assessments have been required.

7.1.7 Structural Stability Assessment

The most recent structural stability assessment was completed in October of 2016 and posted to Gavin's publicly accessible internet site on 09 October 2016. A copy of the assessment is provided in Appendix F.

7.1.8 Safety Factor Assessment

The most recent safety factor assessment was finalized in December of 2015 and posted to Gavin's publicly accessible internet site on 09 October 2016. A copy of the assessment is provided in Appendix G.

8. CONCLUSIONS

Under the Final Rule in 40 CFR §257.101(a)(1), the existing unlined BAP would be required to cease-receipt-of-waste and close by 11 April 2021. Through extensive research, analysis, and evaluation, Gavin elected to convert the existing bottom ash sluicing system to a dry handling system and has proceeded with the detailed engineering of the system. As described in Section 6, the fastest feasible timeline for achieving alternative capacity with this approach is 10 March 2023, at which point, CCR waste streams will no longer need to be sent to the BAP and the BAP will initiate closure. Gavin will use the existing infrastructure to repurpose the BAP as a PWP through a combination of removal of CCR and consolidating CCR in place.

Gavin demonstrated the infeasibility of other alternative capacity options and has demonstrated why a conversion to dry bottom ash handling is the most technically feasible alternative capacity option for this plant. Gavin demonstrated the lack of readily available space on site or off site to build a new CCR surface impoundment or treatment facility, and determined that this alternative capacity option was unlikely to be successful. Building a wastewater treatment plant, new CCR surface impoundment, or retrofitting an existing CCR impoundment would present constructability challenges, and these alternative capacity options would not support ELG compliance. Creating alternative capacity for non-CCR process water streams outside of the BAP in a non-CCR wastewater basin would not aid in closing the BAP faster, as Gavin demonstrated the ability to commence CCR waste removal as soon as spring 2023 while continuously managing non-CCR waste streams in the BAP and eliminating the need to construct new process water treatment infrastructure. Gavin evaluated the availability of alternative capacity for CCR waste streams at existing off-site facilities, found no viable facilities within a 50-mile radius.

The project schedule presented in Appendix B shows that Gavin has already invested a significant amount of time and effort toward achieving alternative capacity for CCR waste streams currently going to the BAP. The schedule shows that Gavin will actively continue to pursue alternative capacity and perform many of the tasks required to do so concurrently. Despite Gavin's best efforts to perform the required engineering, design, procurement, fabrication, and construction tasks as efficiently as possible, the schedule presented shows that it is impossible to achieve alternative capacity for the CCR waste streams by 11 April 2021, and justifies an extension to 10 March 2023.

8.1 Adverse Impacts to Plant Operations if BAP were Closed §257.103(f)(1)(iv)(A)(1)(ii)

CCR and non-CCR waste streams must continue to be managed in the BAP until the Unit 2 outage to convert to dry handling is initiated in March 2023. There is currently no alternative capacity on site or off site for managing CCR and non-CCR waste streams, nor can alternative capacity be developed by 11 April 2021. If required to cease-receipt-of-waste and initiate closure of the BAP in 11 April 2021, Gavin would have to cease power production, which would reduce generation capacity in the state, reduce reliability of the electric grid, and result in the direct loss of hundreds of jobs in the area.

8.2 Request for Approval of Site-Specific Alternative to Initiation of Closure under 257.103(f)(1)

In response to the Final Rule for 40 CFR, Part 257, Subpart D, Section 257.103(f)(1) effective 28 September 2020, Gavin seeks USEPA approval to continue to operate the BAP until 10 March 2023 on the basis that alternative capacity for CCR and non-CCR waste streams cannot be completed prior to 11 April 2021. The Gavin Plant is and will remain in compliance with all other requirements of 40 CFR, Part 257, Subpart D.

9. REFERENCES

Environmental Resources Management (ERM). 2018. *Bottom Ash Complex Location Restriction Report.* Gavin Plant, Cheshire Ohio.

Geosyntec, 2016. *Gavin Site—Bottom Ash Complex Groundwater Monitoring Network Evaluation.*

Ohio Division of Geological Survey. 1998. *Physiographic regions of Ohio: Ohio Department of Natural Resources, Division of Geological Survey*.